EDITORIAL

Cross-fertilization of ideas keeps zoology as a contemporary discipline

The review by Geoff Williams (an entomologist) and Paul Adam (a botanist) of the pollination of Australian rainforest plants is both a thorough piece of science and a testament to the value of interdisciplinary studies. It is fascinating to see the vital link between Australian rainforest plants and animals so sharply in focus. What is also appealing is the range of pollinators, one of which, a jewel beetle, features on the cover of this edition of *Australian Zoologist*. As this journal has maintained an enthusiastic interest in bats, the review was examined closely to ensure that Williams and Adam had given due recognition to this neglected but important element of Australian fauna. They had. Australia's unique rainforests provide crucial habitat for many Australian animals in a relationship of mutual dependence. Conserving our biodiversity depends on our recognition of the extent of this interdependence between living organisms, including humans.

Harry Recher would leave few readers in doubt that the living world, seen through the eyes of an ecologically-oriented zoologist, is in crisis. Recher's thesis is that our collective failure to recognize our mutual interdependence with the living things around us is the root cause of the environmental threats that appear to have crept up on us. Recher is clear that an ecological view of the world not only enables us to interpret the cause of both the global and local environmental crises we face, but also allows us to reasonably predict the future. Sometimes Recher seems to despair that not enough will be done in time to halt the slide and repair the damage and that short-term vested interests will predominate. While Recher rails against such ignorance, he saves his most vitriolic language for those who understand the problem but do not act. If Harry Recher had been less outspoken over the last quarter century he would be occupying a higher position in the scientific establishment but Australia would be a shabbier, more degraded place if he had been more circumspect. The power in what he says lies in the ecological insights he gives to his eclectic, interdisciplinary approach to zoology.

Both Chris Dickman in his historical review of New South Wales mammals, and Bob Faraghar and John Harris in their historical review of New South Wales fish, have laid bare a dismal decline in our biodiversity in the brief 206 years of European colonization of New South Wales. In addition to their own disciplinary skills, these authors have utilized the tools of an historian to produce a strikingly clear picture of change, loss and failure to recognize the frailty of so many species in the face of even minor environmental changes. As the changes proceeded, so the losses increased. It is an easy extrapolation to see further reductions in species diversity with continuing loss and simplification or alteration to habitats. The cross-fertilization between ecology, historical geography, and biodiversity conservation provides a clearer picture of change not gained by pursuing just one discipline. These authors show that zoology is a contemporary discipline that is of value to society because it provides a unique way of looking at the world.

Threats to the survival of Australian species are home grown efforts on a par with other nations. The cause here is the same: land degradation and loss of habitats caused by a human population that is growing in size and affluence, without programmes of environmental protection that compensate for the rapid growth in the human population. Three causes for this lag are apparent. Firstly, to investigate and conserve the biodiversity of a site, or a nation increases the cost of development. Secondly, the investment in scientific studies that are needed to underpin environmental protection policies and programmes are either not properly funded or are instigated only at the last minute. Thirdly, formal communication of what is known is well short of sufficient. The papers of *Australian Zoologist* pick up some of the findings and ideas but this is not enough.

There need to be more formal channels for communicating scientific research and scientists need, as a body, to be more forthcoming. Promotion criteria for scientists should include a score for spelling out the policy and management implications of their work. But fear of doing so prevents all but a modest proportion of scientists from venturing into the seemingly tricky world of policy and politics. Of those who have done so, there are many good examples to be found in the pages of the *Australian Zoologist* and the *Transactions of the Royal Zoological Society of NSW* over the last six years. No scientist has suffered from publishing these thoughts yet many have benefitted professionally by seeing their ideas being implemented. The best safeguard for scientists presenting their ideas in this way is in the process of independent refereeing at a consistently high standard.

A feature of the publications of the Royal Zoological Society is the rigour of the review process. It is not just the editors who set the standard, but also the Council of the Royal Zoological Society of NSW, through its monthly meetings, which helps to hold the line. Difficult material is referred to the Council for discussion and editors report each month to Council. At no stage has the standard of scientific refereeing been other than demanding and consistent. R. Hoser disagrees (see his Letter to the Editor) in relation to the review by Shelley Burgin of his book *Smuggling*, and at this point we invite you to be the judge.

Ron Strahan, in his most valuable second instalment of the history of the Society, was right; there is a recent emphasis in the *Australian Zoologist* and the *Transactions* on wildlife management issues. However, a wide variety of other subjects are both welcome and encouraged. Recent interest by herpteologists is one example. One of the pleasures of being an editor is seeing a theme edition attract interest in submitting further papers for publication. The paper by Barden and Shine on sex and diet in *Lerista bougainvillii* is a good example following *Herpetology in Australia. A diverse discipline* (1993) ed. D. Lunney and D. Ayers.

Book reviews are a feature of *Australian Zoologist* because they offer a chance for a good book to receive critical acclaim, for poor books or poor parts of books to be identified and for reviewers to emphasize points that are rarely seen in print because the opportunity rarely arises. Books are unlike scientific papers in that the review of the material occurs publicly after publication. There is no formal, pre-publication procedure for the independent critical review of books. If reviews were never published there is a danger that poorly conceived productions could gain an influence through slick marketing. The process of publishing book reviews in scientific journals lets readers, potential authors and book editors know that the day of reckoning may be postponed but must eventually be faced. Review editors in publishing houses recognize this and willingly send books to *Australian Zoologist* when requested. The promotion of a book through reviews amply justifies the cost to publishers of sending a review copy. The hardest part is getting people to write a review. Book reviewing is a skill worth developing for personal benefit and for its contribution to science.

Dianne Vavryn's paper on the former flying fox camps of the Barmoya district, near Rockhampton, Central Queensland, manages to capture the memories of long-term local residents before they are lost forever. The glimpse we gain from this paper is that the losses were substantial, rapid and unrecorded at the time. The necessity to record now what is still in living memory is urgently needed lest we live with an underestimate, or a distorted view, of the biodiversity of Australia at the time of European colonization. Both bats and ecological history are recurrent themes in the *Australian Zoologist* because there is no doubt that national efforts to conserve the extraordinary biodiversity of Australia will have to draw on what little is known of the past, and of odd animals such as bats. Dianne Vavryn described the loss of flying foxes to one of us (D.L.) during a morning tea at a national bat conference in 1991 organized by Les Hall. Gentle persuasion elicited the story as a written version. If you hear a good story at morning tea, encourage the modest storyteller to write it up for publication. It may be the only chance to record a piece of ecological history. In contrast, the paper on the range extension of the Golden-tipped Bat by Harry Parnaby and Doug Mills reflects another peculiarity of underestimating our national biodiversity. Here, a previously little-known bat is being found over an ever-wider range which shows that our regional bat faunas are richer than formerly recognized. This also allows the concern that they may have been reduced before being recorded in any fashion and thus beyond the reach of even the most dedicated ecological historian.

Peter Fairweather's review of Environmental Impact Statements (EISs) illustrates the poverty of attempts by policy writers trying to reinvent scientific standards. The best EISs do a good job, but there is too little in the process to ensure that good science is performed. If EISs remain a key link between the straight sciences and the planners who determine which developments occur, then a continuing loss of biodiversity can be assured. The EIS process was a good idea, when introduced in the 1970s, to fill the gap between scientists and planners, but unless the standard of the science is consistently high then the planning process will continue to falter. One suggestion is to separate the scientific component of EISs from the advocacy component and subject the science to independent critical review.

Burrows, Hales and Beattie add further ideas to the public discussion on recording and conserving the nation's biodiversity from the lessons they drew when trying to save what appeared to be a unique occurrence of an aquatic millipede in the grounds of Macquarie University. Their example may sound slight on a national scale, but contains the problem in a nutshell. By reaching beyond their strict biological discipline these authors began to pinpoint both the problems and solutions for conserving Australia's biodiversity. It was a delight to receive their paper: it was another encouragement over a morning cuppa.

The editorial policy of *Australian Zoologist* is evident in this editorial and the publications of the Society over the past seven years. It is to encourage a diversity of ideas, information and research on Australian animals and the conservation of their habitats. There is only one primary criterion: that a submitted paper survives a rigorous process of independent critical review. Supplementary criteria are that the writing is clear (there is little hesitation in the use of the editorial red pen), that, where possible, illustrations are provided, and that the authors offer an opinion about how their contribution is relevant to either the advancement of the science of zoology or the conservation of biodiversity. Irrelevant considerations include the length of the paper or the apparent insignificance of an issue because it is so local. A principle of editorial policy is to maintain the relevance of zoology to the world around us. A cross-fertilization of ideas gives effect to that aim.

This edition of *Australian Zoologist* was co-edited. One of the pleasures of science is co-operative work, and sharing the rewards and burdens of a project, such as editing a journal, leads to an interchange of ideas which prevents the inbreeding that can occur if just one person is the gatekeeper. As editors, we are indebted to those who have assisted in the editorial process. We are indeed grateful to Alison Curtin and Catherine Rummery for their careful work in helping to get papers into production.

Daniel Lunney and Lyndall Dawson
Editors